

SEQUENCE LISTING

<110> Steward, Lance E.
Fernandez-Salas, Ester
Aoki, Kei Roger

<120> Fret Protease Assays For Botulinum
Serotype A/E Toxins

<130> P-AR 4803

<160> 96

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic construct

<400> 1

Glu Ala Asn Gln Arg Ala Thr Lys
1 5

<210> 2

<211> 206

<212> PRT

<213> Homo sapiens

<400> 2

Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
1 5 10 15
Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
20 25 30
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
35 40 45
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met
50 55 60
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
65 70 75 80
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
85 90 95
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
100 105 110
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
115 120 125

FOR 230 " 7202460

Ile	Ser	Gly	Gly	Phe	Ile	Arg	Arg	Val	Thr	Asn	Asp	Ala	Arg	Glu	Asn
130						135				140					
Glu	Met	Asp	Glu	Asn	Leu	Glu	Gln	Val	Ser	Gly	Ile	Ile	Gly	Asn	Leu
145					150					155					160
Arg	His	Met	Ala	Leu	Asp	Met	Gly	Asn	Glu	Ile	Asp	Thr	Gln	Asn	Arg
				165					170					175	
Gln	Ile	Asp	Arg	Ile	Met	Glu	Lys	Ala	Asp	Ser	Asn	Lys	Thr	Arg	Ile
			180					185						190	
Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Met	Leu	Gly	Ser	Gly		
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<400> 3
 Gly Ala Ser Gln Phe Glu Thr Ser
 1 5

<210> 4
 <211> 116
 <212> PRT
 <213> Homo sapiens

<400> 4
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 1 5 10 15
 Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu
 20 25 30
 Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
 35 40 45
 Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
 50 55 60
 Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
 65 70 75 80
 Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
 85 90 95
 Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Val
 100 105 110
 Tyr Phe Ser Ser
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<210> 5
 <211> 8

094204-082601

<212> PRT
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<220>
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<400> 5
Asp Thr Lys Lys Ala Val Lys Trp
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<210> 6
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<213> Artificial Sequence

<220>
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<400> 6
Arg Asp Gln Lys Leu Ser Glu Leu
1 5

<210> 7
<211> 206
<212> PRT
<213> Rattus sp.

<400> 7
Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
1 5 10 15
Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
20 25 30
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
35 40 45
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met
50 55 60
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
65 70 75 80
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
85 90 95
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
100 105 110
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
115 120 125
Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
130 135 140
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu

108280-12024660

145 150 155 160
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
 165 170 175
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile
 180 185 190
Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
 195 200 205

<210> 8
<211> 8
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<213> Artificial Sequence

<220>
<223> synthetic construct

<400> 8
Gln Ile Asp Arg Ile Met Glu Lys
1 5

<210> 9
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
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<400> 9
Glu Arg Asp Gln Lys Leu Ser Glu
1 5

<210> 10
<211> 8
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<213> Artificial Sequence

<220>
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<400> 10
Glu Thr Ser Ala Ala Lys Leu Lys
1 5

FOB280"42024650

<210> 11
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic construct

<400> 11
 Gly Ala Ser Gln Phe Glu Thr Ser
 1 5

<210> 12
 <211> 206
 <212> PRT
 <213> Mus musculus

<400> 12
 Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
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 Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
 20 25 30
 Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
 35 40 45
 Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met
 50 55 60
 Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
 65 70 75 80
 Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
 85 90 95
 Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
 100 105 110
 Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
 115 120 125
 Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
 130 135 140
 Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu
 145 150 155 160
 Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
 165 170 175
 Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile
 180 185 190
 Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
 195 200 205

<210> 13
 <211> 212
 <212> PRT
 <213> Drosophila sp.

094204-0301

<400> 13

Met	Pro	Ala	Asp	Pro	Ser	Glu	Glu	Val	Ala	Pro	Gln	Val	Pro	Lys	Thr
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Glu	Leu	Glu	Glu	Leu	Gln	Ile	Asn	Ala	Gln	Gly	Val	Ala	Asp	Glu	Ser
			20					25					30		
Leu	Glu	Ser	Thr	Arg	Arg	Met	Leu	Ala	Leu	Cys	Glu	Glu	Ser	Lys	Glu
		35					40					45			
Ala	Gly	Ile	Arg	Thr	Leu	Val	Ala	Leu	Asp	Asp	Gln	Gly	Glu	Gln	Leu
	50					55					60				
Asp	Arg	Ile	Glu	Glu	Gly	Met	Asp	Gln	Ile	Asn	Ala	Asp	Met	Arg	Glu
65					70					75					80
Ala	Glu	Lys	Asn	Leu	Ser	Gly	Met	Glu	Lys	Cys	Cys	Gly	Ile	Cys	Val
			85						90					95	
Leu	Pro	Cys	Asn	Lys	Ser	Gln	Ser	Phe	Lys	Glu	Asp	Asp	Gly	Thr	Trp
			100					105					110		
Lys	Gly	Asn	Asp	Asp	Gly	Lys	Val	Val	Asn	Asn	Gln	Pro	Gln	Arg	Val
	115						120					125			
Met	Asp	Asp	Arg	Asn	Gly	Met	Met	Ala	Gln	Ala	Gly	Tyr	Ile	Gly	Arg
	130					135					140				
Ile	Thr	Asn	Asp	Ala	Arg	Glu	Asp	Glu	Met	Glu	Glu	Asn	Met	Gly	Gln
145					150					155					160
Val	Asn	Thr	Met	Ile	Gly	Asn	Leu	Arg	Asn	Met	Ala	Leu	Asp	Met	Gly
				165					170					175	
Ser	Glu	Leu	Glu	Asn	Gln	Asn	Arg	Gln	Ile	Asp	Arg	Ile	Asn	Arg	Lys
			180					185					190		
Gly	Glu	Ser	Asn	Glu	Ala	Arg	Ile	Ala	Val	Ala	Asn	Gln	Arg	Ala	His
		195					200					205			
Gln	Leu	Leu	Lys												
			210												

<210> 14

<211> 203

<212> PRT

<213> Carassius auratus

<400> 14

Met	Ala	Asp	Glu	Ala	Asp	Met	Arg	Asn	Glu	Leu	Thr	Asp	Met	Gln	Ala
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Arg	Ala	Asp	Gln	Leu	Gly	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg	Arg	Met
			20					25					30		
Leu	Gln	Leu	Val	Glu	Glu	Ser	Lys	Asp	Ala	Gly	Ile	Arg	Thr	Leu	Val
		35					40					45			
Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Glu	Arg	Ile	Glu	Glu	Gly	Met
	50					55					60				
Asp	Gln	Ile	Asn	Lys	Asp	Met	Lys	Leu	Ala	Glu	Lys	Asn	Leu	Thr	Asp
65				70						75					80
Leu	Gly	Asn	Leu	Cys	Gly	Leu	Cys	Pro	Cys	Pro	Cys	Asn	Lys	Leu	Lys
			85					90					95		
Gly	Gly	Gly	Gln	Ser	Trp	Gly	Asn	Asn	Gln	Asp	Gly	Val	Val	Ser	Ser
			100					105					110		
Gln	Pro	Ala	Arg	Val	Val	Asp	Glu	Arg	Glu	Gln	Met	Ala	Ile	Ser	Gly
		115						120				125			

09942024-082801

Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn Glu Met Asp
 130 135 140
 Glu Asn Leu Glu Gln Val Gly Ser Ile Ile Gly Asn Leu Arg His Met
 145 150 155 160
 Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg Gln Ile Asp
 165 170 175
 Arg Ile Met Asp Met Ala Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala
 180 185 190
 Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
 195 200

<210> 15
 <211> 212
 <212> PRT
 <213> Strongylocentrotus purpuratus

<400> 15
 Met Glu Asp Gln Asn Asp Met Asn Met Arg Ser Glu Leu Glu Glu Ile
 1 5 10 15
 Gln Met Gln Ser Asn Met Gln Thr Asp Glu Ser Leu Glu Ser Thr Arg
 20 25 30
 Arg Met Leu Gln Met Ala Glu Glu Ser Gln Asp Met Gly Ile Lys Thr
 35 40 45
 Leu Val Met Leu Asp Glu Gln Gly Glu Gln Leu Asp Arg Ile Glu Glu
 50 55 60
 Gly Met Asp Gln Ile Asn Thr Asp Met Arg Glu Ala Glu Lys Asn Leu
 65 70 75 80
 Thr Gly Leu Glu Lys Cys Cys Gly Ile Cys Val Cys Pro Trp Lys Lys
 85 90 95
 Leu Gly Asn Phe Glu Lys Gly Asp Asp Tyr Lys Lys Thr Trp Lys Gly
 100 105 110
 Asn Asp Asp Gly Lys Val Asn Ser His Gln Pro Met Arg Met Glu Asp
 115 120 125
 Asp Arg Asp Gly Cys Gly Gly Asn Ala Ser Met Ile Thr Arg Ile Thr
 130 135 140
 Asn Asp Ala Arg Glu Asp Glu Met Asp Glu Asn Leu Thr Gln Val Ser
 145 150 155 160
 Ser Ile Val Gly Asn Leu Arg His Met Ala Ile Asp Met Gln Ser Glu
 165 170 175
 Ile Gly Ala Gln Asn Ser Gln Val Gly Arg Ile Thr Ser Lys Ala Glu
 180 185 190
 Ser Asn Glu Gly Arg Ile Asn Ser Ala Asp Lys Arg Ala Lys Asn Ile
 195 200 205
 Leu Arg Asn Lys
 210

<210> 16
 <211> 249
 <212> PRT
 <213> Gallus gallus

109942024-082801

<400> 16

Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
 1 5 10 15
 Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
 20 25 30
 Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
 35 40 45
 Met Leu Asp Glu Gln Gly Glu Gln Leu Asp Arg Val Glu Glu Gly Met
 50 55 60
 Asn His Ile Asn Gln Asp Met Lys Glu Ala Glu Lys Asn Leu Lys Asp
 65 70 75 80
 Leu Gly Lys Cys Cys Gly Leu Phe Ile Cys Pro Cys Asn Lys Leu Lys
 85 90 95
 Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
 100 105 110
 Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
 115 120 125
 Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
 130 135 140
 Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu
 145 150 155 160
 Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
 165 170 175
 Gln Ile Asp Arg Ile Met Glu Lys Leu Ile Pro Ile Lys Pro Gly Leu
 180 185 190
 Met Lys Pro Thr Ser Val Gln Gln Arg Cys Ser Ala Val Val Lys Cys
 195 200 205
 Ser Lys Val His Phe Leu Leu Met Leu Ser Gln Arg Ala Val Pro Ser
 210 215 220
 Cys Phe Tyr His Gly Ile Tyr Leu Leu Gly Leu His Thr Cys Thr Tyr
 225 230 235 240
 Gln Pro His Cys Lys Cys Cys Pro Val
 245

<210> 17

<211> 116

<212> PRT

<213> Mus musculus

<400> 17

Met Ser Ala Thr Ala Ala Thr Val Pro Pro Ala Ala Pro Ala Gly Glu
 1 5 10 15
 Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu
 20 25 30
 Gln Gln Thr Gln Ala Cln Val Asp Glu Val Val Asp Ile Met Arg Val
 35 40 45
 Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
 50 55 60
 Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
 65 70 75 80
 Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
 85 90 95

09942024-082801

Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val
 100 105 110
 Tyr Phe Ser Thr
 115

<210> 18
 <211> 116
 <212> PRT
 <213> Bos taurus

<400> 18
 Met Ser Ala Thr Ala Ala Thr Ala Pro Pro Ala Ala Pro Ala Gly Glu
 1 5 10 15
 Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu
 20 25 30
 Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
 35 40 45
 Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
 50 55 60
 Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
 65 70 75 80
 Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
 85 90 95
 Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val
 100 105 110
 Tyr Phe Ser Ser
 115

<210> 19
 <211> 114
 <212> PRT
 <213> Xenopus laevis

<400> 19
 Met Ser Ala Pro Ala Ala Gly Pro Pro Ala Ala Ala Pro Gly Asp Gly
 1 5 10 15
 Ala Pro Gln Gly Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu Gln Gln
 20 25 30
 Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val Asn Val
 35 40 45
 Asp Lys Val Leu Glu Arg Asp Thr Lys Leu Ser Glu Leu Asp Asp Arg
 50 55 60
 Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
 65 70 75 80
 Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Met Lys Met Met Ile Ile
 85 90 95
 Met Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val Tyr Phe
 100 105 110
 Ser Thr

09942024-082301

<210> 20
 <211> 104
 <212> PRT
 <213> Strongylocentrotus purpuratus

<400> 20
 Met Ala Ala Pro Pro Pro Gln Pro Ala Pro Ser Asn Lys Arg Leu
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 Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
 20 25 30
 Asn Val Asp Lys Val Leu Glu Arg Asp Gln Ala Leu Ser Val Leu Asp
 35 40 45
 Asp Arg Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn
 50 55 60
 Ala Gly Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys Met Met
 65 70 75 80
 Ile Ile Leu Ala Ile Ile Ile Val Ile Leu Ile Ile Ile Ile Val
 85 90 95
 Ala Ile Val Gln Ser Gln Lys Lys
 100

<210> 21
 <211> 288
 <212> PRT
 <213> Homo sapiens

<400> 21
 Met Lys Asp Arg Thr Gln Glu Leu Arg Thr Ala Lys Asp Ser Asp Asp
 1 5 10 15
 Asp Asp Asp Val Ala Val Thr Val Asp Arg Asp Arg Phe Met Asp Glu
 20 25 30
 Phe Phe Glu Gln Val Glu Glu Ile Arg Gly Phe Ile Asp Lys Ile Ala
 35 40 45
 Glu Asn Val Glu Glu Val Lys Arg Lys His Ser Ala Ile Leu Ala Ser
 50 55 60
 Pro Asn Pro Asp Glu Lys Thr Lys Glu Glu Leu Glu Glu Leu Met Ser
 65 70 75 80
 Asp Ile Lys Lys Thr Ala Asn Lys Val Arg Ser Lys Leu Lys Ser Ile
 85 90 95
 Glu Gln Ser Ile Glu Gln Glu Glu Gly Leu Asn Arg Ser Ser Ala Asp
 100 105 110
 Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val
 115 120 125
 Glu Val Met Ser Glu Tyr Asn Ala Thr Gln Ser Asp Tyr Arg Glu Arg
 130 135 140
 Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Arg Thr Thr
 145 150 155 160
 Thr Ser Glu Glu Leu Glu Asp Met Leu Glu Ser Gly Asn Pro Ala Ile
 165 170 175
 Phe Ala Ser Gly Ile Ile Met Asp Ser Ser Ile Ser Lys Gln Ala Leu
 180 185 190

00042024-082301

Ser	Glu	Ile	Glu	Thr	Arg	His	Ser	Glu	Ile	Ile	Lys	Leu	Glu	Asn	Ser
	195						200					205			
Ile	Arg	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met	Leu	Val	Glu
	210					215					220				
Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	His	Ala
225					230				235						240
Val	Asp	Tyr	Val	Glu	Arg	Ala	Val	Ser	Asp	Thr	Lys	Lys	Ala	Val	Lys
			245					250						255	
Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Ile	Ile	Cys	Cys
	260						265					270			
Val	Ile	Leu	Gly	Ile	Val	Ile	Ala	Ser	Thr	Val	Gly	Gly	Ile	Phe	Ala
	275						280					285			

<210> 22
 <211> 288
 <212> PRT
 <213> Homo sapiens

<400> 22															
Met	Lys	Asp	Arg	Thr	Gln	Glu	Leu	Arg	Ser	Ala	Lys	Asp	Ser	Asp	Asp
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Glu	Glu	Glu	Val	Val	His	Val	Asp	Arg	Asp	His	Phe	Met	Asp	Glu	Phe
			20					25					30		
Phe	Glu	Gln	Val	Glu	Glu	Ile	Arg	Gly	Cys	Ile	Glu	Lys	Leu	Ser	Glu
	35					40					45				
Asp	Val	Glu	Gln	Val	Lys	Lys	Gln	His	Ser	Ala	Ile	Leu	Ala	Ala	Pro
	50				55					60					
Asn	Pro	Asp	Glu	Lys	Thr	Lys	Gln	Glu	Leu	Glu	Asp	Leu	Thr	Ala	Asp
65				70					75						80
Ile	Lys	Lys	Thr	Ala	Asn	Lys	Val	Arg	Ser	Lys	Leu	Lys	Ala	Ile	Glu
			85					90					95		
Gln	Ser	Ile	Glu	Gln	Glu	Glu	Gly	Leu	Asn	Arg	Ser	Ser	Ala	Asp	Leu
		100					105						110		
Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys	Phe	Val	Glu
	115					120						125			
Val	Met	Thr	Glu	Tyr	Asn	Ala	Thr	Gln	Ser	Lys	Tyr	Arg	Asp	Arg	Cys
	130				135						140				
Lys	Asp	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly	Arg	Thr	Thr	Thr
145				150					155						160
Asn	Glu	Glu	Leu	Glu	Asp	Met	Leu	Glu	Ser	Gly	Lys	Leu	Ala	Ile	Phe
			165					170						175	
Thr	Asp	Asp	Ile	Lys	Met	Asp	Ser	Gln	Met	Thr	Lys	Gln	Ala	Leu	Asn
	180						185						190		
Glu	Ile	Glu	Thr	Arg	His	Asn	Glu	Ile	Ile	Lys	Leu	Glu	Thr	Ser	Ile
	195					200						205			
Arg	Glu	Leu	His	Asp	Met	Phe	Val	Asp	Met	Ala	Met	Leu	Val	Glu	Ser
	210				215						220				
Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	His	Ser	Val
225				230					235						240
Asp	Tyr	Val	Glu	Arg	Ala	Val	Ser	Asp	Thr	Lys	Lys	Ala	Val	Lys	Tyr
			245					250						255	
Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Ile	Ile	Cys	Cys	Val

0594004 082801

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<210> 23
<211> 288
<212> PRT
<213> Mus musculus
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<210> 24
<211> 291
<212> PRT
<213> Drosophila sp.
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<400> 24

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Glu	Glu	Glu	Thr	Glu	Val	Ala	Val	Asn	Val	Asp	Gly	His	Asp	Ser	Tyr
			20					25					30		
Met	Asp	Asp	Phe	Phe	Ala	Gln	Val	Glu	Glu	Ile	Arg	Gly	Met	Ile	Asp
		35					40					45			
Lys	Val	Gln	Asp	Asn	Val	Glu	Val	Lys	Lys	Lys	His	Ser	Ala	Ile	
	50					55				60					
Leu	Ser	Ala	Pro	Gln	Thr	Asp	Glu	Lys	Thr	Lys	Gln	Glu	Leu	Glu	Asp
65					70					75					80
Leu	Met	Ala	Asp	Ile	Lys	Lys	Asn	Ala	Asn	Arg	Val	Arg	Gly	Lys	Leu
				85					90					95	
Lys	Gly	Ile	Glu	Gln	Asn	Ile	Glu	Gln	Glu	Glu	Gln	Gln	Asn	Lys	Ser
			100					105						110	
Ser	Ala	Asp	Leu	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg
		115					120					125			
Lys	Phe	Val	Glu	Val	Met	Thr	Glu	Tyr	Asn	Arg	Thr	Gln	Thr	Asp	Tyr
	130					135					140				
Arg	Glu	Arg	Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly
145					150					155					160
Arg	Pro	Thr	Asn	Asp	Asp	Glu	Leu	Glu	Lys	Met	Leu	Glu	Glu	Gly	Asn
				165					170					175	
Ser	Ser	Val	Phe	Thr	Gln	Gly	Ile	Ile	Met	Glu	Thr	Gln	Gln	Ala	Lys
			180					185					190		
Gln	Thr	Leu	Ala	Asp	Ile	Glu	Ala	Arg	His	Gln	Asp	Ile	Met	Lys	Leu
		195					200					205			
Glu	Thr	Ser	Ile	Lys	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met
	210					215				220					
Leu	Val	Glu	Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	His	Val
225					230					235					240
Glu	His	Ala	Met	Asp	Tyr	Val	Gln	Thr	Ala	Thr	Gln	Asp	Thr	Lys	Lys
				245					250					255	
Ala	Leu	Lys	Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Leu
			260					265					270		
Ile	Cys	Leu	Thr	Val	Leu	Gly	Ile	Leu	Ala	Ala	Ser	Tyr	Val	Ser	Ser
		275					280					285			
Tyr	Phe	Met													
		290													

<210> 25

<211> 291

<212> PRT

<213> *Cacnorchaditis elegans*

<400> 25

Met	Thr	Lys	Asp	Arg	Leu	Ser	Ala	Leu	Lys	Ala	Ala	Gln	Ser	Glu	Asp
1				5					10					15	
Glu	Gln	Asp	Asp	Asp	Met	His	Met	Asp	Thr	Gly	Asn	Ala	Gln	Tyr	Met
			20					25					30		
Glu	Glu	Phe	Phe	Glu	Gln	Val	Glu	Glu	Ile	Arg	Gly	Ser	Val	Asp	Ile

	35		40		45														
Ile	Ala	Asn	Asn	Val	Glu	Glu	Val	Lys	Lys	Lys	His	Ser	Ala	Ile	Leu				
	50					55					60								
Ser	Asn	Pro	Val	Asn	Asp	Gln	Lys	Thr	Lys	Glu	Glu	Leu	Asp	Glu	Leu				
65				70						75					80				
Met	Ala	Val	Ile	Lys	Arg	Ala	Ala	Asn	Lys	Val	Arg	Gly	Lys	Leu	Lys				
				85					90					95					
Leu	Ile	Glu	Asn	Ala	Ile	Asp	His	Asp	Glu	Gln	Gly	Ala	Gly	Asn	Ala				
			100					105					110						
Asp	Leu	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Arg	Phe				
	115					120						125							
Val	Glu	Val	Met	Thr	Asp	Tyr	Asn	Lys	Thr	Gln	Thr	Asp	Tyr	Arg	Glu				
	130				135					140									
Arg	Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Asp	Ile	Ala	Gly	Lys	Gln				
145					150				155						160				
Val	Gly	Asp	Glu	Asp	Leu	Glu	Glu	Met	Ile	Glu	Ser	Gly	Asn	Pro	Gly				
				165					170					175					
Val	Phe	Thr	Gln	Gly	Ile	Ile	Thr	Asp	Thr	Gln	Gln	Ala	Lys	Gln	Thr				
			180				185						190						
Leu	Ala	Asp	Ile	Glu	Ala	Arg	His	Asn	Asp	Ile	Met	Lys	Leu	Glu	Ser				
	195						200					205							
Ser	Ile	Arg	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met	Leu	Val				
	210					215				220									
Glu	Ser	Gln	Gly	Glu	Met	Val	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	His				
225					230					235					240				
Ala	Lys	Glu	Phe	Val	Asp	Arg	Ala	Val	Ala	Asp	Thr	Lys	Lys	Ala	Val				
				245					250					255					
Gln	Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Cys	Ile	Leu	Val	Thr				
			260					265					270						
Gly	Val	Ile	Leu	Ile	Thr	Gly	Leu	Ile	Ile	Phe	Ile	Leu	Phe	Tyr	Ala				
	275						280					285							
Lys	Val	Leu																	
	290																		

<210> 26
 <211> 288
 <212> PRT
 <213> Strongylocentrotus purpuratus

<400> 26
 Met Arg Asp Arg Leu Gly Ser Leu Lys Arg Asn Glu Glu Asp Asp Val
 1 5 10 15
 Gly Pro Glu Val Ala Val Asn Val Glu Ser Glu Lys Phe Met Glu Glu
 20 25 30
 Phe Phe Glu Gln Val Glu Glu Val Arg Asn Asn Ile Asp Lys Ile Ser
 35 40 45
 Lys Asn Val Asp Glu Val Lys Lys His Ser Asp Ile Leu Ser Ala
 50 55 60
 Pro Gln Ala Asp Glu Lys Val Lys Asp Glu Leu Glu Glu Leu Met Ser
 65 70 75 80
 Asp Ile Lys Lys Thr Ala Asn Lys Val Arg Ala Lys Leu Lys Met Met
 85 90 95

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Glu	Gln	Ser	Ile	Glu	Gln	Glu	Glu	Ser	Ala	Lys	Met	Asn	Ser	Ala	Asp
			100					105					110		
Val	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys	Phe	Val
			115				120					125			
Glu	Val	Met	Thr	Asp	Tyr	Asn	Ser	Thr	Gln	Thr	Asp	Tyr	Arg	Glu	Arg
		130				135					140				
Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly	Lys	Ser	Thr
145					150					155					160
Thr	Asp	Ala	Glu	Leu	Glu	Asp	Met	Leu	Glu	Ser	Gly	Asn	Pro	Ala	Ile
			165					170					175		
Phe	Thr	Ser	Gly	Ile	Ile	Met	Asp	Thr	Gln	Gln	Ala	Lys	Gln	Thr	Leu
			180				185						190		
Arg	Asp	Ile	Glu	Ala	Arg	His	Asn	Asp	Ile	Ile	Lys	Leu	Glu	Ser	Ser
		195					200					205			
Ile	Arg	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met	Leu	Val	Glu
		210				215					220				
Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	Gln	Ser
225					230					235					240
Val	Asp	Tyr	Val	Glu	Thr	Ala	Lys	Met	Asp	Thr	Lys	Lys	Ala	Val	Lys
			245						250					255	
Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Phe	Tyr	Ile	Ala	Ile	Cys	Cys
		260						265					270		
Gly	Val	Ala	Leu	Gly	Ile	Leu	Val	Leu	Val	Leu	Ile	Ile	Val	Leu	Ala
		275					280					285			

<210> 27
 <211> 13
 <212> PRT
 <213> Homo sapiens

<400> 27
 Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met
 1 5 10

<210> 28
 <211> 15
 <212> PRT
 <213> Homo sapiens

<400> 28
 Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
 1 5 10 15

<210> 29
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 29
 Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met

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1 5 10 15

<210> 30
<211> 17
<212> PRT
<213> Homo sapiens

<400> 30
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 31
<211> 17
<212> PRT
<213> Homo sapiens

<400> 31
Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
1 5 10 15
Met

<210> 32
<211> 18
<212> PRT
<213> Homo sapiens

<400> 32
Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
1 5 10 15
Met Leu

<210> 33
<211> 33
<212> PRT
<213> Mus musculus

<400> 33
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys
1 5 10 15
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
20 25 30
Gly

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T08280-42024650

<210> 34
<211> 32
<212> PRT
<213> Homo sapiens

<400> 34
Gln Asn Pro Gln Ile Lys Arg Ile Thr Asp Lys Ala Asp Thr Asn Arg
1 5 10 15
Asp Arg Ile Asp Ile Ala Asn Ala Arg Ala Lys Lys Leu Ile Asp Ser
20 25 30

<210> 35
<211> 32
<212> PRT
<213> Mus musculus

<400> 35
Gln Asn Gln Gln Ile Gln Lys Ile Thr Glu Lys Ala Asp Thr Asn Lys
1 5 10 15
Asn Arg Ile Asp Ile Ala Asn Thr Arg Ala Lys Lys Leu Ile Asp Ser
20 25 30

<210> 36
<211> 34
<212> PRT
<213> Gallus gallus

<400> 36
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Leu Ile Pro Ile Lys
1 5 10 15
Pro Gly Leu Met Lys Pro Thr Ser Val Gln Gln Arg Cys Ser Ala Val
20 25 30
Val Lys

<210> 37
<211> 33
<212> PRT
<213> Carassius auratus

<400> 37
Gln Asn Arg Gln Ile Asp Arg Ile Met Asp Met Ala Asp Ser Asn Lys
1 5 10 15
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
20 25 30
Gly

<210> 38

094204-08301

<211> 33
<212> PRT
<213> Carassius auratus

<400> 38
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys
1 5 10 15
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
20 25 30
Gly

<210> 39
<211> 30
<212> PRT
<213> Torpedo sp.

<400> 39
Gln Asn Ala Gln Val Asp Arg Ile Val Val Lys Gly Asp Met Asn Lys
1 5 10 15
Ala Arg Ile Asp Glu Ala Asn Lys His Ala Thr Lys Met Leu
20 25 30

<210> 40
<211> 33
<212> PRT
<213> Strongylocentrotus purpuratus

<400> 40
Gln Asn Ser Gln Val Gly Arg Ile Thr Ser Lys Ala Glu Ser Asn Glu
1 5 10 15
Gly Arg Ile Asn Ser Ala Asp Lys Arg Ala Lys Asn Ile Leu Arg Asn
20 25 30
Lys

<210> 41
<211> 31
<212> PRT
<213> Caenorhabditis elegans

<400> 41
Gln Asn Arg Gln Leu Asp Arg Ile His Asp Lys Gln Ser Asn Glu Val
1 5 10 15
Arg Val Glu Ser Ala Asn Lys Arg Ala Lys Asn Leu Ile Thr Lys
20 25 30

<210> 42
<211> 31

094404.08301

<212> PRT

<213> Drosophila sp.

<400> 42

Gln	Asn	Arg	Gln	Ile	Asp	Arg	Ile	Asn	Arg	Lys	Gly	Glu	Ser	Asn	Glu
1				5				10						15	
Ala	Arg	Ile	Ala	Val	Ala	Asn	Gln	Arg	Ala	His	Gln	Leu	Leu	Lys	
			20				25						30		

<210> 43

<211> 32

<212> PRT

<213> Hirudinida sp.

<400> 43

Gln	Asn	Arg	Gln	Val	Asp	Arg	Ile	Asn	Asn	Lys	Met	Thr	Ser	Asn	Gln
1				5				10						15	
Leu	Arg	Ile	Ser	Asp	Ala	Asn	Lys	Arg	Ala	Ser	Lys	Leu	Leu	Lys	Glu
			20				25						30		

<210> 44

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 44

Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Ala
1				5				10						15	
Leu															

<210> 45

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<221> MOD_RES

<222> 16

<223> Xaa=Nle

<400> 45

Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Xaa
1				5				10						15	
Leu															

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<210> 46
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 46
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Ala Met
1 5 10 15
Leu

<210> 47
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 47
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Ser Lys Met
1 5 10 15
Leu

<210> 48
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 14
<223> Xaa=Abu

<400> 48
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Xaa Lys Met
1 5 10 15
Leu

<210> 49

094204-0880-12024660

<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 13
<223> Xaa=Abu

<400> 49
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Xaa Thr Lys Met
1 5 10 15
Leu

<210> 50
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 50
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Ala Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 51
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 11
<223> Xaa=Abu

<400> 51
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Xaa Ala Thr Lys Met Leu
1 5 10 15

<210> 52
<211> 17
<212> PRT

094204-0201
T08280-4202+50

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 52

Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Asn Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 53

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 53

Ser Asn Lys Thr Arg Ile Asp Glu Ala Ala Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 54

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<221> MOD_RES

<222> 9

<223> Xaa=Abu

<400> 54

Ser Asn Lys Thr Arg Ile Asp Glu Xaa Asn Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 55

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

100230-72024660

<400> 55

Ser Asn Lys Thr Arg Ile Asp Gln Ala Asn Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 56

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 56

Ser Asn Lys Thr Arg Ile Asn Glu Ala Asn Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 57

<211> 40

<212> PRT

<213> Homo sapiens

<400> 57

Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala
20 25 30
Lys Leu Lys Arg Lys Tyr Trp Trp
35 40

<210> 58

<211> 40

<212> PRT

<213> Bos taurus

<400> 58

Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
20 25 30
Lys Leu Lys Arg Lys Tyr Trp Trp
35 40

<210> 59

<211> 40

09404-0830-42024560

<212> PRT

<213> Rattus sp.

<400> 59

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5				10					15		
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Val	Phe	Glu	Ser	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 60

<211> 40

<212> PRT

<213> Rattus sp.

<400> 60

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5				10					15		
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 61

<211> 40

<212> PRT

<213> Rattus sp.

<400> 61

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5				10					15		
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 62

<211> 40

<212> PRT

<213> Rattus sp.

<400> 62

Asp	Leu	Val	Ala	Gln	Arg	Gly	Glu	Arg	Leu	Glu	Leu	Leu	Ile	Asp	Lys
1				5				10					15		
Thr	Glu	Asn	Leu	Val	Asp	Ser	Ser	Val	Thr	Phe	Lys	Thr	Thr	Ser	Arg
			20					25					30		
Asn	Leu	Ala	Arg	Ala	Met	Cys	Met								
		35					40								

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<210> 63
 <211> 32
 <212> PRT
 <213> Gallus gallus

<400> 63
 Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu
 1 5 10 15
 Gln Ala Gly Ala Ser Val Phe Glu Ser Ser Ala Ala Lys Leu Lys Arg
 20 25 30

<210> 64
 <211> 32
 <212> PRT
 <213> Gallus gallus

<400> 64
 Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu
 1 5 10 15
 Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala Lys Leu Lys Arg
 20 25 30

<210> 65
 <211> 40
 <212> PRT
 <213> Torpedo sp.

<400> 65
 Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
 1 5 10 15
 Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala
 20 25 30
 Lys Leu Lys Arg Lys Tyr Trp Trp
 35 40

<210> 66
 <211> 40
 <212> PRT
 <213> Strongylocentrotus purpuratus

<400> 66
 Asp Lys Val Leu Asp Arg Asp Gly Ala Leu Ser Val Leu Asp Asp Arg
 1 5 10 15
 Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn Ala Gly
 20 25 30
 Lys Leu Lys Arg Lys Tyr Trp Trp
 35 40

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<210> 67
 <211> 40
 <212> PRT
 <213> *Aplysia* sp.

<400> 67
 Glu Lys Val Leu Asp Arg Asp Gln Lys Ile Ser Gln Leu Asp Asp Arg
 1 5 10 15
 Ala Glu Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly
 20 25 30
 Lys Leu Lys Arg Lys Tyr Trp Trp
 35 40

<210> 68
 <211> 40
 <212> PRT
 <213> *Teuthoida* sp.

<400> 68
 Asp Lys Val Leu Glu Arg Asp Ser Lys Ile Ser Glu Leu Asp Asp Arg
 1 5 10 15
 Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly
 20 25 30
 Lys Leu Lys Arg Lys Phe Trp Trp
 35 40

<210> 69
 <211> 40
 <212> PRT
 <213> *Caenorhabditis elegans*

<400> 69
 Asn Lys Val Met Glu Arg Asp Val Gln Leu Asn Ser Leu Asp His Arg
 1 5 10 15
 Ala Glu Val Leu Gln Asn Gly Ala Ser Gln Phe Gln Gln Ser Ser Arg
 20 25 30
 Glu Leu Lys Arg Gln Tyr Trp Trp
 35 40

<210> 70
 <211> 40
 <212> PRT
 <213> *Drosophila* sp.

<400> 70
 Glu Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Gly Glu Arg
 1 5 10 15
 Ala Asp Gln Leu Glu Gly Gly Ala Ser Gln Ser Glu Gln Gln Ala Gly
 20 25 30
 Lys Leu Lys Arg Lys Gln Trp Trp

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35

40

<210> 71
<211> 40
<212> PRT
<213> Drosophila sp.

<400> 71
Glu Lys Val Leu Glu Arg Asp Ser Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Gln Gln Ala Gly
20 25 30
Lys Leu Lys Arg Lys Phe Trp Leu
35 40

<210> 72
<211> 39
<212> PRT
<213> Hirudinida sp.

<400> 72
Asp Lys Val Leu Glu Lys Asp Gln Lys Leu Ala Glu Leu Asp Arg Ala
1 5 10 15
Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly Lys
20 25 30
Leu Lys Arg Lys Phe Trp Trp
35

<210> 73
<211> 18
<212> PRT
<213> Homo sapiens

<400> 73
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 74
<211> 18
<212> PRT
<213> Bos taurus

<400> 74
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

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<210> 75
<211> 18
<212> PRT
<213> Rattus sp.

<400> 75
Glu His Ala Lys Glu Glu Thr Lys Lys Ala Ile Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 76
<211> 18
<212> PRT
<213> Rattus sp.

<400> 76
Glu Lys Ala Arg Asp Glu Thr Arg Lys Ala Met Lys Tyr Gln Gly Gly
1 5 10 15
Ala Arg

<210> 77
<211> 18
<212> PRT
<213> Rattus sp.

<400> 77
Glu Arg Gly Gln Glu His Val Lys Ile Ala Leu Glu Asn Gln Lys Lys
1 5 10 15
Ala Arg

<210> 78
<211> 18
<212> PRT
<213> Gallus gallus

<400> 78
Val Pro Glu Val Phe Val Thr Lys Ser Ala Val Met Tyr Gln Cys Lys
1 5 10 15
Ser Arg

<210> 79
<211> 18
<212> PRT

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<213> Strongylocentrotus purpuratus

<400> 79

Val Arg Arg Gln Asn Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 80

<211> 18

<212> PRT

<213> Aplysia sp.

<400> 80

Glu Thr Ala Lys Met Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 81

<211> 18

<212> PRT

<213> Teuthoida sp.

<400> 81

Glu Thr Ala Lys Val Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 82

<211> 18

<212> PRT

<213> Drosophila sp.

<400> 82

Gln Thr Ala Thr Gln Asp Thr Lys Lys Ala Leu Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 83

<211> 18

<212> PRT

<213> Hirudinida sp.

<400> 83

Glu Thr Ala Ala Ala Asp Thr Lys Lys Ala Met Lys Tyr Gln Ser Ala
1 5 10 15

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Ala Arg

<210> 84
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic construct

<400> 84
Gly Gly Gly Gly Ser
1 5

<210> 85
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic construct

<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine

<221> MOD_RES
<222> 20
<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 85
Xaa Asp Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
1 5 10 15
Met Leu Xaa

<210> 86
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic construct

<221> MOD_RES

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<223> Xaa=fluorescein-modified lysine

Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln
1 5 10

<213> Artificial Sequence

<223> synthetic construct

<223> Xaa=tetramethylrhodamine-modified lysine

<223> at the C-terminal

Arg Ala Thr Lys Met Leu Xaa
1 5

<213> Artificial Sequence

<223> synthetic peptide

<223> Xaa=fluorescein-modified lysine

<223> Xaa=tetramethylrhodamine-modified lysine

<223> at the C-terminal

Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr
1 5 10 15
Lys Met Leu Gly Ser Gly Xaa

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<210> 89
<211> 21
<212> PRT
<213> Artificial Sequence
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<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine
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<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
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<210> 90
<211> 24
<212> PRT
<213> Artificial Sequence
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<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine
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<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
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<400> 90
Xaa Ala Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala
1 5 10 15

Thr Lys Met Leu Gly Ser Gly Xaa
20

<210> 91
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine

<221> MOD_RES
<222> 16
<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 91
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Xaa
1 5 10 15

<210> 92
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine

<221> MOD_RES
<222> 19
<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 92
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly
1 5 10 15
Ser Gly Xaa

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"42024650"

<210> 93
 <211> 22
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic peptide

<221> MOD_RES
 <222> 1
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<221> MOD_RES
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 <223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
 <222> (0)...(0)
 <223> at the C-terminal

<400> 93
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 Met Leu Gly Ser Gly Xaa
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<210> 94
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<220>
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<221> MOD_RES
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<221> MOD_RES
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<221> AMIDATION
 <222> (0)...(0)
 <223> at the C-terminal

<400> 94
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108280-4224650

1 5 10 15

<210> 95
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<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
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<221> MOD_RES
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<223> Xaa=EDANS modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 95
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Ser Gly Xaa

<210> 96
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<212> PRT
<213> Homo sapiens

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Pro Gly Gly Gly Pro Pro Gly Pro Pro Pro Asn Met Thr Ser Asn Arg
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Arg Leu Gln Gln Thr Gln Ala Gln Val Glu Glu Val Val Asp Ile Ile
35 40 45
Arg Val Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu
50 55 60
Leu Asp Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu
65 70 75 80
Ser Ser Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys
85 90 95
Met Met Ile Met Leu Gly Ala Ile Cys Ala Ile Ile Val Val Val Ile
100 105 110
Val Ile Tyr Phe Phe Thr
115

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